Fate Creek
Culvert Replacement

Environmental Assessment
South River Field Office
EA # OR-105-02-08

U.S. Department of the Interior, Bureau of Land Management
Roseburg District Office
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Chapter 1
PURPOSE AND NEED

This chapter provides a description of the purpose and need for the action being proposed and analyzed in this environmental assessment (EA).

Background

In October, 2000, the 106th Congress of the United States passed the "Secure Rural Schools and Community Self-Determination Act of 2000". The primary purpose of the Act was to provide dependable and predictable funding to counties in the area of the Northwest Forest Plan, in lieu of payments which were historically based on a percentage of revenues generated by the sale of timber from the Federal lands. Under Title II authority (**Special Projects on Federal Lands**) of the Act, "Funds reserved by an eligible county under paragraph (1)(B)(i) shall be deposited in a special account in the Treasury of the United States and shall be available for expenditure by the Secretary of the Interior . . ." The Secretary may approve the use these funds ". . . for the purpose of entering into and implementing cooperative agreements with willing Federal agencies, State and local governments, private and nonprofit entities, and landowners for protection, restoration and enhancement of fish and wildlife habitat, and other resource objectives consistent with the purposes of this title on Federal land and on non-Federal land where projects would benefit these resources on Federal land." Resource Advisory Committees (RACs) were formed to review proposals and make recommendations on adoption or rejection, to the Secretary, or an individual acting as the Secretary's designated agent.

In February, 2002, the Roseburg District RAC recommended approval of partial funding of a proposal from the Umpqua Basin Watershed Council (UBWC) for culvert replacement and aquatic restoration on Fate Creek. The project site is located entirely on county and private lands in Section 6, T. 30 S., R. 3 W., where the Days Creek Road (Douglas County Highway 34) crosses Fate Creek. Because adoption of the RAC recommendation constitutes approval of the Secretary of Interior and the allocation of Federal funds reserved under the Act, the project becomes a Federal action. The National Environmental Policy Act (NEPA) requires that the Bureau of Land Management (BLM) complete an environmental assessment of the project.

Purpose

The purpose of the project is to restore fish passage in Fate Creek and correct other habitat and water quality problems associated with existing in-stream structures. The project would involve: replacement of an existing, undersized and improperly installed culvert; removal of an irrigation dam upstream of the culvert; and removal of in-stream gabions below the culvert. These structures block access by adult and juvenile fish to upstream habitat through most of the year, and have also affected normal stream function resulting in downcutting of the channel below the culvert, and accumulation of sediment above the dam.

Need

There is a need for the project, in order to meet the objectives of the "Secure Rural Schools and Community Self-Determination Act of 2000" that requires expenditure of Title II funds on projects that restore and enhance fish and wildlife habitat. There is also a need for the project, in order to meet the objectives of State and Federal government agencies for the restoration of aquatic habitat and water quality necessary for the maintenance and restoration of viable populations of anadromous fish species.

Chapter 2
DISCUSSION OF THE ALTERNATIVES

This chapter describes the basic features of the alternatives being analyzed in this environmental assessment.

I. Alternative 1 - The Proposed Action

The proposed project has been designed for the UBWC by an outside consulting engineer. The implementation of the project would be administered by the UBWC. The BLM would authorize the expenditure of Title II funds to assist in accomplishment of the project. The essential features of the project are described below.

- A temporary by-pass road would be constructed to accommodate traffic while County Highway 34 is closed during culvert removal and replacement, requiring the placement of a temporary culvert/stream crossing in Fate Creek.

- The existing 8-foot diameter culvert would be replaced with a 164-inch x 105-inch pipe-arch culvert with herringbone baffles. The pipe would be sufficient in size to span the full, active channel width and accommodate a 100-year flood event estimated at between 650 and 700 cubic feet per second.

- An irrigation dam located approximately 200 feet upstream of the culvert would be removed. To prevent rapid downcutting and mobilization of accumulated sediments, a chute would be constructed by placing larger rocks to form a steepened stream channel or chute. The chute would allow fish to move upstream, and allow gradual dispersal of accumulated sediments as the stream bed gradually regrades.

- Gabions below the culvert outlet would be replaced by rock weirs that would create backwater pools and, as the stream regrades, riffle habitat.

In addition to those already described, the following project design features and stipulations would be implemented to meet permit requirements of the Oregon Division of State Lands, as well as objectives and requirements of the Oregon Department of Fish and Wildlife (ODF&W) and the Oregon Department of Agriculture.

- All construction equipment would be pressure washed or steam-cleaned prior to delivery to the project site to remove any soil that could be contaminated with noxious weed seed, in order to reduce the risk of introducing noxious weeds.

- In-stream work would be limited to the period between July 1 and September 15, when stream flows are at their lowest levels.

- To the extent practicable, in-stream equipment operation would be minimized and stream flow diverted or pumped around the site during in-stream work.

- An absorbent boom would be placed downstream of the project site prior to the start of construction activities, to contain any inadvertent petroleum spills.

- Silt dams or fences would be installed to minimize sediment transport into Fate Creek, and downstream to Days Creek.

- Disturbed areas would be seeded and mulched, or otherwise revegetated, to reduce the risk of erosion, sedimentation and establishment of noxious weeds.

II. Alternative II - No Action

Under an alternative of "No Action", the BLM would not authorize the obligation and expenditure of Title II funds for the project. For the purpose of this analysis, it is assumed that the project would not go forward if Federal funding were denied. If, however, Federal funds were denied, it is expected that alternative sources of funding would be sought so that the project could proceed. In this event, the project would no longer constitute a Federal action and would not require analysis under NEPA.

III. Alternatives Considered But Eliminated From Detailed Analysis

Two alternatives to a pipe-arch culvert were considered. The replacement of the existing culvert with a bridge was not considered feasible because of prohibitive costs. Installation of an open-bottom arch was also considered but rejected because of the extensive engineering that would be needed, and because of prohibitive costs associated with securing the arch to bedrock.

IV. Resources That Are Not Present or Would Be Unaffected by Either Alternative

The following resources are absent from the project area or would not be affected by either of the alternatives: air quality; Areas of Critical Environmental Concern (ACEC); prime or unique farmlands; floodplains; Wild and Scenic Rivers; wilderness; and visual resources. No Native American religious concerns, environmental justice issues, cultural resources, solid or hazardous waste have been documented.

Neither of the alternatives would have any Adverse Energy Impact. No known commercially viable energy resources exist in the project area, nor are there production, transmission or conservation facilities that would be affected.

Chapter 3
THE AFFECTED ENVIRONMENT

This chapter summarizes the specific resources that are present or have the potential to be present within the area, and that could be affected by the proposed action.

I. General Project Setting

The project area is located in the Douglas County Highway 34 right-of-way and on adjoining ranch lands astride the highway. The site is on the valley floor, just above the confluence of Fate Creek and Days Creek. Trees along the highway and creeks are dominated by hardwood species. Pasture lands give way to conifer and mixed conifer-hardwood forest on the surrounding hills and ridges.

There are no documented cultural or historic sites in the project area. As a consequence, cultural and historic resources will not be discussed further in this analysis.

In the past three years, two other in-stream projects have been completed upstream of the project site. These projects removed of one irrigation dam and modified a second to accommodate fish passage in the fall and winter months. The culvert site beneath the highway, and the lowest irrigation dam and gabions represent the last barriers to reestablishing habitat access to the entire Fate Creek system.

II. Fish and Essential Fish Habitat

Oregon Coast cutthroat trout (*Oncorhynchus clarki clarki*), Oregon Coast steelhead trout (*Oncorhynchus mykiss)*, and Oregon Coast coho salmon (*Oncorhynchus kisutch*) have all been documented in Fate Creek.

The Oregon Coast coho salmon Evolutionary Significant Unit (ESU) is listed as threatened by the National Marine Fisheries Service (Federal Register August 10, 1998), with designation of critical habitat on February 16, 2000. The Oregon Coast steelhead trout ESU is a candidate for listing as threatened status (Federal Register March 19, 1998).

The Oregon Coast cutthroat trout ESU is under review by the U.S. Fish and Wildlife Service for candidate status. The National Marine Fisheries Service listed the Oregon Coastal cutthroat trout a candidate species, and transferred jurisdiction to the U.S. Fish and Wildlife Service (Federal Register April 21, 2000).

During low flows, the existing culvert has an outfall of approximately four feet in height which acts as a barrier to passage by adult and juvenile fish during summer months. The irrigation dam creates another 2-foot vertical barrier to upstream migration by all juvenile fish, and potentially

adults, except during some high flow events. The culvert is also a barrier during high flows when in-pipe flow velocities block the passage of juvenile fish and limit passage by adult fish. In 2001, Surveys by the ODF&W observed only two adult salmonids upstream of the project site. Gabions below the culvert bar the passage of juvenile fish throughout most of the year.

Fate Creek would provide approximately four miles of year-round habitat except for the existence of these man-made barriers. The exact extent of critical habitat and Essential Fish Habitat is undetermined, however. Stream gradients recorded during surveys indicate that gradients are sufficiently shallow to allow coho rearing (ODF&W. 1994.). These surveys were limited to the first 2.17 km (~1.35 miles) of the stream, though, and no assessment of the upper reaches has been made.

III. Water Quality/Resources

The Oregon Department of Environmental Quality has placed Fate Creek on its 303(d) Listing of Water Quality Limited Waterbodies (ODEQ. 1998.) for elevated water temperatures that exceed a standard of 64^0 F. Despite this fact, Fate Creek is noted for reliable flow levels, and in years of below-normal precipitation retains flow even when Days Creek drys up during summer months. Below Fate Creek, Days Creek is listed for habitat modification reflecting a lack of large wood in-stream. Registered water rights in the area are exclusively agricultural, for irrigation and livestock watering.

The design and installation of the existing culvert has resulted in down-cutting of the stream channel below the culvert, which is partly responsible for the out-fall described above. The irrigation dam and gabions have backed up sediment rather then allowing it to pass through the system and disperse downstream.

IV. Wildlife

There are four species of terrestrial wildlife documented on the Roseburg District, that are currently listed as threatened or endangered under the Endangered Species Act. The project area is located approximately 20 miles east of the Management Zone for the Federally-threatened marbled murrelet (*Brachyramphus marmoratum*), and is south of the historic range of the Federally-endangered Columbian White-tailed deer (*Odocoileus virginianus leucurus*). Surveys for the Federally-threatened bald eagle (*Haliaeetus leucocephalus*) conducted annually by the Oregon Cooperative Wildlife Research Unit from 1975 through 1999, have not documented any bald eagles nesting within the South River Resource Area. As a consequence, none of these species are expected in the project area and they will not be discussed further in this analysis.

The northern spotted owl (*Strix occidentalis caurina*) inhabits forest lands throughout Douglas County, Oregon, where suitable nesting, roosting and foraging habitat is typically provided by late-successional and old-growth forest. No suitable nesting, roosting and foraging habitat exists in Section 6, T. 30 S., R. 3 W., although some dispersal habitat is present. The project area is

within 2-to-4 miles of three owl activity centers, but is not located within the 1.3-miles radius of any provincial territory. The project would not cause disturbance to owls or owl habitat, and as a consequence, the northern spotted owl will not be discussed further in this analysis.

Because the project area is located on non-Federal lands, there are no provisions for surveys and protection of Survey and Manage species, and they will receive no further discussion.

V. Botanical Resources

The U. S. Fish and Wildlife Service has identified an array of soil series within a range of geographic quadrangles that are considered suitable habitat for the Federally-threatened Kincaid's lupine (*Lupinus sulphureus var. kincaidii*). The project area is within the identified geographic range, but the requisite soil types are absent. As a consequence, the site is not considered to be suitable habitat. Kincaid's lupine is not expected to be present or affected by the project, and will not be discussed further in this analysis.

As is the case with wildlife, there are no provisions for surveys and protection of Survey and Manage species on non-Federal lands. As a consequence, they will receive no further discussion in this analysis.

VI. Noxious Weeds

The project area, particularly the route of the proposed by-pass road are thickly overgrown with Himalayan blackberry (*Rubus discolor*, also known as *Rubus procera*), to the exclusion of most other vegetation. No other noxious weed species are noted and documented.

Chapter 4
ENVIRONMENTAL CONSEQUENCES

This chapter discusses how the specific resources in the project area would or would not be affected in the short term and long term, by implementation of the alternatives contained in this analysis. The discussion also identifies the potential impacts or consequences that would expected.

I. Alternative 1 - Proposed Action

The proposed action would meet the purpose of reestablishing access for juvenile and adult fish to four miles of spawning and rearing habitat in Fate Creek. It would also meet the need to dedicate Title II funds provided by the "Secure Rural Schools and Community Self-Determination Act of 2000" for projects that restore and enhance fish and wildlife habitat.

A. Fish and Essential Fish Habitat

In the short term, fish downstream of the project site could be directly affected by localized increases in fine sediments that would be disturbed and mobilized during in-stream work associated with replacement of the culvert and removal of the irrigation dam and gabions. These effects would exist in Fate Creek below the culvert site, and for perhaps ¼-mile in Days Creek, downstream of the confluence with Fate Creek. Increases in sediment would not be anticipated to persist beyond the first winter following completion of the project. Effects on fish could include reduced respiratory efficiency resulting from gill irritation, and reduced feeding efficiency resulting from reduced visibility. As a consequence, the action would be "likely to adversely affect" coho salmon and steelhead trout. These effects are consistent with those addressed in the National Marine Fisheries Service *Programmatic Biological and Conference Opinion for Programmatic Activities Affecting SONC Coho Salmon, OC Coho Salmon, and OC Steelhead* (USDC. August 8, 2001). Actions such as the one proposed in this analysis will not prevent or appreciably delay the recovery of properly functioning habitat conditions. With the project design features described (pp. 3-4) in this analysis, the effects to fish populations are not anticipated to result in the likelihood of jeopardy, nor in destruction or adverse modification of aquatic habitat. The extent of incidental take, if any, would not be measurable as a long-term effect on population levels.

The project would also be "likely to adversely affect" designated critical habitat and Essential Fish Habitat for the coho salmon, downstream of the project site. Because spawning habitat is located upstream of the project site, sediment would not degrade spawning gravels and would have no affect on this habitat.

In the near and long terms, fish would benefit from the project through restored access to habitat within the Fate Creek drainage. The new pipe-arch culvert would reduce flow velocities and eliminate the vertical drop that presently prevents passage to all juvenile fish and most adults. Removal of the irrigation dam would also allow passage by fish. Removal of the gabions and construction of backwater pools would provide resting and feeding habitat.

B. Water Quality/Resources

The proposed action would have no affect on the water quality parameters for which the Oregon Department of Environmental Quality has listed Fate Creek and Days creek as water quality limited (p. 6). There would be localized, short-term increases in sediment as a consequence of in-stream work associated with the project, and the gradual dispersal of sediments that have accumulated behind the irrigation dam and gabions.

The integrity and condition of the stream channel and banks would be maintained and improved in the long term. Installation of the new pipe-arch culvert would eliminate downcutting presently associated with the improperly installed culvert. Sizing of the pipe to full bank width would remove restrictions to flow that accelerate stream velocities and result in abnormal bank and channel erosion. Design to accommodate a 100-year flood event would also diminish the risk of failure and washout of the structure that could introduce large quantities of sediment into Fate Creek and Days Creek, and in a debris torrent that could result in extreme erosion of banks and channels.

C. Noxious Weeds

As noted above, all construction equipment would be cleaned prior to move-in, so no introduction of noxious weeds would be anticipated. Construction of the temporary by-pass road would include the mechanical removal of dense growths of Himalayan blackberries. Disturbed areas would be revegetated with native grasses or plants to reduce the likelihood of noxious weed species becoming established. This would reduce the presence of blackberries or other noxious weeds that may be in the immediate area, and reduce the potential for further spread.

II. Alternative 2 - No Action

Under the alternative of "No Action", no Title II funds would be designated for expenditure on the replacement of the culvert and structures that presently limit or preclude fish access to upstream habitat in Fate Creek. The objectives of State and Federal agencies to

A. Fish and Essential Fish Habitat

Under the alterative of "No Action", there would be no direct effect to fish, in the short-term, from sediment that would otherwise be dispersed by replacement of the culvert

under the proposed action. In the long term, however, the risk of fish being affected by sediment would increase as outflow from the existing culvert continues to downcut the stream bed, and as sediment continues to accumulate behind the earthen irrigation dam and the risk of failure in a flood event increases. The short term and long term risks to critical habitat for coho salmon and Essential Fish Habitat would be the same.

B. Water Quality/Resources

Under an alternative of "No Action", the consequences to water quality are effectively the same as those for fish and aquatic habitat. The improperly installed culvert that is currently in place would continue to downcut the stream channel downstream, and accelerated flow through the pipe would scour the channel and banks. In the event of a large flood event the undersized pipe would be at risk of failure resulting in a debris torrent that would further degrade stream morphology. The irrigation dam would continue to accumulate sediments, and over time would pose an increasing risk of failure and a release of the sediments as a torrent.

C. Noxious Weeds

Under the alternative of "No Action", there would be no change in present levels of infestation of noxious weeds. Unless treatment and control are undertaken independently by the County Highway Department and the adjacent landowner, blackberries and other noxious weeds in the project site will continue to flourish and spread.

III. Cumulative Effects

Since the proposed project would constitute the replacement of an existing culvert, there would be no cumulative increase in road density or stream crossing density in the Fate creek drainage. Sediment increases associated with the installation of the new culvert would be localized and of short duration. In the long term, the project would help to restore the natural sediment regime, and would provide four additional miles of habitat that would contribute to the restoration of stable fish populations in the drainage, watershed and river basin.

III. Monitoring

The success of the project in reestablishing access by juvenile and adult fish to habitat in Fate Creek would be monitored by the ODF&W and the Umpqua Basin Watershed Council. The ODF&W would survey for the presence of fish above the project area in the first year following completion of the project. The Watershed Council would continue monitoring for the presence of juvenile and adult fish in the upper reaches of Fate Creek for an additional four years.

Chapter 5
Agencies and Individuals Contacted; Preparers; Literature and References Cited

I. Agencies and Individuals Contacted:

Cow Creek Band of Umpqua Indians
National Marine Fisheries Service
Oregon Department of Agriculture
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Oregon Division of State Lands

II. Preparers:

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III. The following Agencies, Organizations, and Individuals will be notified of the completion of the EA/FONSI:

Cow Creek Band of Umpqua Indians
Francis Eatherington , Umpqua Watersheds, Inc.
National Marine Fisheries Service
Oregon Department of Agriculture
Oregon Department of Environmental Quality
Oregon Department of Fish and Wildlife
Robert Kinyon, Umpqua Basin Watershed Council
Ronald Yockim, Attorney for Douglas County Commissioners
U.S. Fish and Wildlife Service

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